

## **Amendments to the Claims**

Please cancel Claims 17 and 18. Please amend Claims 2 through 16 and Claim 19 as set forth below. This listing of claims will replace all prior versions and listings of claims in this application:

### **Listing of Claims:**

1. (original) A cryogenic compressor comprising: a compressor having at least one moving part for compressing a gas; an encoder for continuous position tracking of said part, said encoder comprising at least one transmit/receive unit and at least one index plate, said at least one transmit/receive unit and said at least one of said index plates are oriented such that the movement of said part is transformed by said encoder into an electronic signal representing said part's position.
2. (currently amended) A ~~linear encoder~~ The cryogenic compressor as claimed in claim 1 wherein said encoder comprises analog to digital conversion circuitry and outputs digital position signals.
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (currently amended) A ~~digital linear encoder~~ The cryogenic compressor as claimed in claim [2] 1 wherein said encoder is of an absolute-incremental type, comprising a plurality of tracks marked on [said] a scale[. S], wherein said tracks are of different types,

comprised of incremental and index tracks[. S], wherein said incremental tracks [is] are read by [said] a read head to produce speed (or increments of motion per time unit) information of said part[. S], wherein said index tracks are read by said read head to produce index signals representing pre-defined absolute position of said part[. T] whereby the combination of signals from said index and said incremental tracks produce absolute position information of said part at any point of said relative motion.

7. (cancelled)
8. (cancelled)
9. (cancelled)
10. (cancelled)
11. (cancelled)
12. (cancelled)
13. (cancelled)
14. (cancelled)
15. (cancelled)
16. (cancelled)
17. (cancelled)
18. (cancelled)
19. (currently amended) A cryogenic refrigerator having at least one reciprocating piston[s] for displacing refrigeration gas and comprising a linear magnetic encoder/~~eneeders~~ for continuous position tracking of said at least one piston[s. S], wherein said encoder ~~e~~onists of comprises a read head and a scale[. O], wherein one of [the] said read head or scale is stationary while the other is attached to said at least one

piston to create relative motion between said read head and said scale[. S], whereby said relative motion is transformed [in] by said encoder into signals representing said at least one piston's position.